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सहायक लोको पायलट की भर्ती/ Recruitment of Assistant Loco Pilot



## RRB ALP 2025 CBT 2

Assistant Loco Pilot · CEN 01/2025 · CBT 2 · Mechanic Diesel Trade · Part B (Mechanic Diesel) · Question Paper

English

All 2 Shifts (Sets) · Part B (Mechanic Diesel) Section · Official Answer Key

### About this Compilation

This booklet contains all 2 shift papers of the RRB ALP 2025 CBT 2 (Mechanic Diesel) examination in English (Part B (Mechanic Diesel) section only), with the correct option marked as per the official answer key.

✓ Correct option (highlighted green)

### How to use

- Use the **Index** page to jump directly to any set (clickable).
- Questions appear section by section in the order of the paper, numbered 1 onward.
- Diagram and wide-table questions appear at full width at the end of their section.
- The correct answer is highlighted in green with a tick.

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# Index — All Sets (click to open)

Set 1

28 Jul 2026

9:30 AM - 12:00 PM

Set 2

28 Jul 2026

2:30 PM - 5:00 PM

## Part B (Mechanic Diesel)

75 Questions • Answer Key

## Q1 Part B (Mechanic Diesel)

Which emission standard is currently enforced for diesel vehicles to limit harmful exhaust gases in India?

- A. Bharat Stage III
- B. Bharat Stage VII
- C. Bharat Stage IV
- D. Bharat Stage VI



## Q2 Part B (Mechanic Diesel)

Which sensor helps quiet diesel technology operate effectively?

- A. Engine oil temperature sensor
- B. Fuel filter clog sensor
- C. Crankshaft position sensor
- D. Air intake pressure sensor



## Q3 Part B (Mechanic Diesel)

Which engine part must work closely with the connecting rod to produce rotational movement?

- A. Cylinder head
- B. Fuel injector
- C. Crankshaft
- D. Oil filter



## Q4 Part B (Mechanic Diesel)

In a single overhead camshaft diesel engine, how many camshafts are used for both intake and exhaust valves?

- A. Three
- B. Four
- C. One
- D. Two



## Q5 Part B (Mechanic Diesel)

In which operation would a single-acting cylinder most likely provide the greatest efficiency?

- A. Regulating hydraulic fluid flow
- B. Extending and retracting a tool holder
- C. Ejecting finished components from a machine
- D. Opening and closing a heavy gate



## Q6 Part B (Mechanic Diesel)

A mechanic inspects a diesel engine and finds the oil level indicator shows the oil is just at the 'Low' mark after running the engine for several hours. What is the most appropriate professional action to ensure engine protection?

- A. Add oil until the level reaches the Full mark as indicated
- B. Check the oil again without adding oil to confirm reading
- C. Continue running the engine until next scheduled maintenance
- D. Add oil until the stick is overfilled beyond Full mark



## Q7 Part B (Mechanic Diesel)

In the context of diesel engines, which of the following best describes the primary objective of emission standards?

- A. Increase smoke emission
- B. Reduce pollution levels
- C. Reduce engine power
- D. Increase fuel wastage



## Q8 Part B (Mechanic Diesel)

Where is the timing belt or timing chain generally located in a typical engine layout?

- A. Top section of the engine
- B. Bottom section of the engine
- C. Front section of the engine
- D. Middle section of the engine



## Q9 Part B (Mechanic Diesel)

Which of the following best defines machine efficiency?

- A. Ratio of output to input
- B. Product of input and output
- C. Ratio of input to output
- D. Difference between input and output



**Q10 Part B (Mechanic Diesel)**

Which type of valves is most commonly used in diesel engine cylinder heads?

- A. Sleeve valve
- B. Poppet valve ✓
- C. Rotary valve
- D. Needle valve

**Q11 Part B (Mechanic Diesel)**

In engineering drawing, what is another name for a pictorial/isometric drawing?

- A. Orthographic drawing
- B. Dimension drawing
- C. Three-dimensional drawing ✓
- D. Sectional drawing

**Q12 Part B (Mechanic Diesel)**

During maintenance, a supervisor asks the role of a turbocharger when atmospheric pressure is low. How does it help the engine?

- A. It supplies extra fuel to the engine
- B. It lowers the engine noise produced
- C. It regulates the coolant flow to the engine
- D. It supplies sufficient air to the engine ✓

**Q13 Part B (Mechanic Diesel)**

A marine diesel engine is fitted with a coolant system operating under increased pressure. During operation, the engine coolant temperature rises above normal limits. What is the most likely direct consequence regarding the coolant's boiling point due to the increased system pressure?

- A. The coolant will boil at a lower temperature under higher pressure.
- B. The boiling point of the coolant decreases with system pressure.
- C. The boiling point of the coolant remains unchanged at all pressures.
- D. The boiling point of the coolant increases with system pressure. ✓

**Q14 Part B (Mechanic Diesel)**

Which practice helps maintain the accuracy of a steel rule during daily use?

- A. Measure hot metal parts
- B. Wash after every use
- C. Avoid dropping on floor ✓
- D. Oil every hour of use

**Q15 Part B (Mechanic Diesel)**

Which of the following is a common cause of knocking noise in a diesel engine?

- A. Incorrect fuel injection timing ✓
- B. Excessive engine oil
- C. Worn out piston rings
- D. Loose cylinder head bolts

**Q16 Part B (Mechanic Diesel)**

Why is it important for a temperature-resistant thread sealant to resist both thermal cycling and vibration in automotive environments?

- A. To prevent real-world leaks and seal degradation ✓
- B. To withstand continuous high heat without vibration
- C. To ensure rapid curing under cold start conditions
- D. To facilitate easy removal of components after use

**Q17 Part B (Mechanic Diesel)**

In a battery, the electrolyte conducts electricity through movement of:

- A. Neutral atoms only
- B. Ions ✓
- C. Free electrons only
- D. Magnetic domains

**Q18 Part B (Mechanic Diesel)**

The voltage regulator controls alternator voltage by varying the current flow to the:

- A. Rotor ✓
- B. Battery
- C. Ammeter
- D. Stator



**Q19 Part B (Mechanic Diesel)**

Compression ignition engines are known for their ability to operate efficiently at which type of compression ratio?

- A. Medium compression ratio
- B. Low compression ratio
- C. High compression ratio ✓
- D. Variable compression ratio

**Q20 Part B (Mechanic Diesel)**

Which factor is most important when selecting the material for main bearings in diesel engines?

- A. Ability to withstand cyclic loads ✓
- B. Good machinability
- C. High thermal conductivity
- D. Low manufacturing cost

**Q21 Part B (Mechanic Diesel)**

What is a direct mechanical reason for low power generation in a diesel engine?

- A. Damaged fan belt
- B. Worn piston rings ✓
- C. Faulty alternator
- D. Incorrect coolant level

**Q22 Part B (Mechanic Diesel)**

In a gravity feed system, what action causes fuel to start moving from the tank to the engine?

- A. Heating the fuel tank initiates fuel movement
- B. Releasing the fuel cock allows fuel to flow downward ✓
- C. Activating the pump starts the fuel flow upward
- D. Pressurizing the fuel line pushes fuel forward

**Q23 Part B (Mechanic Diesel)**

What should be done if a toxic dust container is full in the workshop?

- A. Continue using the same container
- B. Mix dust in the container with general waste
- C. Leave the container open until convenient
- D. Seal and replace the container immediately ✓

**Q24 Part B (Mechanic Diesel)**

Which components are connected to each end of the alternator rotor's field winding?

- A. Slip rings ✓
- B. Diodes
- C. Iron poles
- D. Bearings

**Q25 Part B (Mechanic Diesel)**

Which part of the Vernier caliper slides along the main scale for measurement?

- A. Lock screw
- B. Depth rod
- C. Vernier scale ✓
- D. Lower jaw

**Q26 Part B (Mechanic Diesel)**

A solar cell operates on the principle of the:

- A. Photovoltaic effect ✓
- B. Heating effect
- C. Electrochemical effect
- D. Piezoelectric effect

**Q27 Part B (Mechanic Diesel)**

What happens to the armature and rotor in an electromagnetic coupling when the voltage is removed?

- A. Torque remains applied
- B. The armature stays connected
- C. The magnetic force holds them together
- D. The pre stressed spring separates them ✓

**Q28 Part B (Mechanic Diesel)**

A customer complains about sluggish acceleration at low speeds in a diesel vehicle with a fixed-geometry turbocharger. How does a variable geometry turbocharger address this issue?

- A. By raising exhaust gas temperature automatically
- B. By altering turbine geometry to create boost at low speed ✓
- C. By increasing fuel supply at low engine speeds
- D. By reducing exhaust manifold pressure at idle



**Q29 Part B (Mechanic Diesel)**

Which type of bearings is most commonly used for supporting the crankshaft in a diesel engine?

- A. Ball bearing
- B. Needle bearing
- C. Plain bearing ✓
- D. Roller bearing

**Q30 Part B (Mechanic Diesel)**

What property is primarily strengthened in alloy steels through carburizing for piston pins?

- A. Thermal conductivity
- B. Ductility
- C. Corrosion resistance
- D. Surface hardness ✓

**Q31 Part B (Mechanic Diesel)**

A diesel engine workshop tests a radiator by measuring the temperature of water entering and exiting the radiator core during a simulated run. What finding would best confirm that the radiator is performing its intended function?

- A. The water entering is significantly hotter than the water exiting ✓
- B. The water temperature changes slightly with no significant difference
- C. The water entering is the same temperature as the water exiting
- D. The water exiting is significantly hotter than the water entering

**Q32 Part B (Mechanic Diesel)**

If a vehicle has two axles and each axle supports two wheels, what technical category does it fall under?

- A. It is grouped as a six-wheeler vehicle type
- B. It is classified as a four-wheeler vehicle type ✓
- C. It is known as a three-wheeler vehicle type
- D. It is categorized as a two-wheeler vehicle type

**Q33 Part B (Mechanic Diesel)**

In a training scenario, a student is asked about the correct sequence in a forced feed system. Which order best reflects the movement of fuel from the tank to the combustion chamber?

- A. Fuel travels from injectors to water separator, then to tank, finally to combustion chamber
- B. Fuel moves from injection pump to filters, then to tank, finally to injectors
- C. Fuel bypasses filters, moves directly from tank to injectors, then to combustion chamber
- D. Fuel passes from tank to water separator, through filters, to injection pump, then injectors ✓

**Q34 Part B (Mechanic Diesel)**

Which of the following has both magnitude and direction, making it a vector quantity?

- A. Time
- B. Distance
- C. Speed
- D. Velocity ✓

**Q35 Part B (Mechanic Diesel)**

Which of the following statements correctly matches the units of mass with their respective systems?

- A. F.P.S system uses gram, C.G.S system uses kilogram, M.K.S system uses pound
- B. F.P.S system uses gram, C.G.S system uses pound, M.K.S system uses kilogram
- C. F.P.S system uses pound, C.G.S system uses gram, M.K.S system uses kilogram ✓
- D. F.P.S system uses kilogram, C.G.S system uses pound, M.K.S system uses gram

**Q36 Part B (Mechanic Diesel)**

Which type of line is typically used to represent centre lines in engineering drawings?

- A. Continuous thin line
- B. Dashed thin line
- C. Chain thick
- D. Chain thin line ✓



**Q37 Part B (Mechanic Diesel)**

In an alternator stator, how are the windings typically connected in lightweight stator units?

- ☒ A. Star connected
- ☐ B. Series connected
- ☐ C. Delta connected
- ☐ D. Parallel connected

**Q38 Part B (Mechanic Diesel)**

Which process is initiated when the cooling fan operates as designed in a diesel engine cooling system?

- ☐ A. Fuel is circulated faster through the injector pump
- ☒ B. Air is drawn through radiator fins, cooling engine coolant
- ☐ C. Air is filtered before entering the combustion chamber
- ☐ D. Electric current is increased by the alternator circuit

**Q39 Part B (Mechanic Diesel)**

In which application is an external gear pump commonly used in the field of hydraulics?

- ☐ A. Compressing fuel in injectors
- ☒ B. Supplying oil to hydraulic systems
- ☐ C. Transferring air in pneumatic systems
- ☐ D. Lubricating bearings in engines

**Q40 Part B (Mechanic Diesel)**

Which combination of materials is commonly used for the construction of a cross-cut chisel's body and edge?

- ☐ A. Body of hardened steel, edge of mild steel
- ☐ B. Body and edge both brass
- ☒ C. Body of mild steel, edge of hardened steel
- ☐ D. Body and edge both mild steel

**Q41 Part B (Mechanic Diesel)**

In a transformer, if primary conditions remain constant, increasing the number of turns in the secondary winding causes the secondary voltage to:

- ☐ A. Remain unchanged
- ☐ B. Decrease
- ☒ C. Increase
- ☐ D. Become zero

**Q42 Part B (Mechanic Diesel)**

In a parallel connection, all branches connected across the same two nodes have :

- ☐ A. Equal power dissipation
- ☐ B. Zero resistance
- ☐ C. Different currents only
- ☒ D. Equal voltage

**Q43 Part B (Mechanic Diesel)**

A diesel mechanic observes that certain engine parts show signs of rust after a long period without maintenance. Which function of lubricating oil is most relevant in preventing this scenario, considering its role in corrosion reduction?

- ☐ A. Neutralizing acids produced during combustion
- ☐ B. Facilitating heat transfer within engine parts
- ☐ C. Reducing mechanical friction among moving parts
- ☒ D. Forming a protective barrier over metal surfaces

**Q44 Part B (Mechanic Diesel)**

A diesel engine manufacturer needs to ensure rapid and consistent coolant flow through the engine regardless of its operating temperature. Which cooling system design should be selected to meet this requirement?

- ☒ A. Pump circulation system provides rapid and consistent coolant flow
- ☐ B. Thermosyphon system provides rapid and consistent coolant flow
- ☐ C. Water cooling system provides rapid and consistent coolant flow
- ☐ D. Air cooling system provides rapid and consistent coolant flow

**Q45 Part B (Mechanic Diesel)**

A diesel mechanic compares engine types and finds one where each cylinder contains two pistons attached to separate connecting rods. What operational benefit is most associated with this engine type?

- ☒ A. Achieving a higher power to weight ratio is most associated with this engine type.
- ☐ B. Improving engine cooling efficiency is most associated with this engine type.
- ☐ C. Simplifying engine maintenance tasks is most associated with this engine type.
- ☐ D. Reducing overall fuel consumption is most associated with this engine type.



**Q46 Part B (Mechanic Diesel)**

Which component is commonly used in evaporative emission control systems to store fuel vapors temporarily?

- A. Radiator expansion tank
- B. Activated charcoal canister ✓
- C. Air filter case housing
- D. Oil separator ball valve

**Q47 Part B (Mechanic Diesel)**

A commercial vehicle manufacturer plans to design a new city bus for frequent stop-and-go urban traffic. Which engine layout would most effectively facilitate easy passenger boarding, maximize internal space, and support rear-driven axles for better traction, given the operational requirements?

- A. Selecting a rear longitudinal engine layout for the bus design
- B. Selecting a rear transverse engine layout for the bus design ✓
- C. Selecting a front transverse engine layout for the bus design
- D. Selecting a front longitudinal engine layout for the bus design

**Q48 Part B (Mechanic Diesel)**

What is the main function of the adjustment feature on a micrometer?

- A. To lock the spindle for repeated readings
- B. To increase the measurement range
- C. To change the scale type used
- D. To set the zero reading for accuracy ✓

**Q49 Part B (Mechanic Diesel)**

Which property makes particulates from diesel engines particularly harmful in urban environments?

- A. Particulates neutralize when exposed to sunlight
- B. Particulates dissolve rapidly in water near cities
- C. Particulates remain suspended in air for long periods ✓
- D. Particulates settle quickly on ground surfaces

**Q50 Part B (Mechanic Diesel)**

Which of the following actions is the safest procedure if fuel is accidentally spilled in a workshop environment?

- A. Apply water directly to the spill area so that the fuel is immediately diluted.
- B. Clean the spill using approved absorbents and dispose of it as per guidelines ✓
- C. Ignore the spilled fuel completely and allow yourself to continue working as normal.
- D. Leave the spill completely unattended and deal with it only at the end of the shift.

**Q51 Part B (Mechanic Diesel)**

An automotive technician needs to ensure the camshaft is not bent during installation. How can a dial indicator assist in this process?

- A. By measuring the camshaft's straightness as it is rotated and noting any deviation ✓
- B. By measuring the camshaft lobe base circle diameter at a completely fixed position
- C. By ensuring the camshaft journals are properly lubricated prior to the installation
- D. By verifying the camshaft achieves the specified torque value after final tightening

**Q52 Part B (Mechanic Diesel)**

Which issue complicates the implementation of quiet diesel engines?

- A. Designing larger injectors
- B. Precise control of injection timing ✓
- C. Using simpler fuel lines
- D. Operating at lower injection pressure

**Q53 Part B (Mechanic Diesel)**

Which tool is most appropriate for marking parts before removing them during diesel engine dismantling to ensure correct reassembly?

- A. A metal brush.
- B. A barrette file.
- C. A center punch. ✓
- D. An adjustable wrench.



**Q54 Part B (Mechanic Diesel)**

Why are compression ignition engines NOT preferred for high-speed applications?

- A. Produces no torque at high speeds
- B. Smooth operation which decreases speed
- C. Heavier components reduce maximum speed ✓
- D. Requires a complex ignition system

**Q55 Part B (Mechanic Diesel)**

An industrial diesel engine fitted with an automatic shutdown system begins to overheat. Which stopping method will the system typically initiate to ensure rapid and safe engine stoppage?

- A. Disconnecting the starter motor circuit fully
- B. Blocking the air intake using a shutoff flap
- C. Engaging the decompression lever automatically
- D. Cutting the fuel supply via solenoid valve action ✓

**Q56 Part B (Mechanic Diesel)**

Which statement describes the main function of a die stock in the context of threading tools?

- A. It cleans debris from newly cut threads
- B. It measures the diameter of threads during threading operations
- C. It sharpens the cutting edges of dies
- D. It securely holds the die to cut external threads on rods or pipes ✓

**Q57 Part B (Mechanic Diesel)**

If a flat chisel is used instead of a center punch before drilling, what problem might occur?

- A. Drill will make a larger hole
- B. Drill will cut faster
- C. Workpiece will become softer
- D. Drill bit may slip off the spot ✓

**Q58 Part B (Mechanic Diesel)**

Excessive oil consumption in a diesel engine, accompanied by thick blue smoke emitting from the exhaust, most likely indicates:

- A. Piston rings worn out ✓
- B. Worn out gudgeon pins
- C. Low coolant level
- D. High oil level in the sump

**Q59 Part B (Mechanic Diesel)**

When proper safety procedures are followed, compressed air may be used for many workshop tasks. Which of the following should never be done with compressed air?

- A. Clean machine surfaces
- B. Operate pneumatic tools
- C. Inflate vehicle tyres
- D. Remove dust from clothes ✓

**Q60 Part B (Mechanic Diesel)**

If the battery is too weak to operate the starter motor, which starting method can be used in a suitable manual-transmission vehicle?

- A. Starting the vehicle by starter motor.
- B. Starting the vehicle by ignition switch.
- C. Starting the vehicle by push-starting. ✓
- D. Starting the vehicle by remote switch.

**Q61 Part B (Mechanic Diesel)**

A technician observes that after a diesel engine runs for several hours, the vehicle's exhaust sound becomes much louder and a strong smell is detected at the tail pipe. What is the most probable function of the muffler being compromised in this situation?

- A. To regulate exhaust back pressure for engine braking
- B. To redirect exhaust gases and control flow only
- C. To convert exhaust gases and neutralize pollutants
- D. To silence exhaust noise and cool gases before exit ✓

**Q62 Part B (Mechanic Diesel)**

A key advantage of using a lubricating compound in thread sealing is that it:

- A. Accelerates the curing of sealant used
- B. Acts as a solvent for contaminants present
- C. Improves thread strength significantly
- D. Prevents galling and seizing of threads ✓



**Q63 Part B (Mechanic Diesel)**

During a batch production task, the operator must switch quickly between different sizes of workpieces. Which drill vice feature will improve efficiency without compromising holding security?

- A. Fixed jaws with no jaw adjustment capability
- B. Manual unscrewing of vice jaws for each workpiece change
- C. Quick-release mechanism with adjustable jaw inserts ✓
- D. Elastic bands added to standard vice jaws being used

**Q64 Part B (Mechanic Diesel)**

In what way does contrast marking contribute to workshop safety?

- A. Raises cutting speed
- B. Minimizes chance of miscuts ✓
- C. Decreases lighting needs
- D. Increases oil spillage

**Q65 Part B (Mechanic Diesel)**

When selecting a drill bit for making precise holes in a hard metal workpiece, which feature should be prioritized to ensure accuracy and tool life?

- A. The drill bit must have a decorative coating and short overall length.
- B. The drill bit should be made up of carbon steel and have a flat tip.
- C. The drill bit should have a long flute length and no coating at all.
- D. Drill bits need appropriate point angles and must be HSS or carbide. ✓

**Q66 Part B (Mechanic Diesel)**

Which bearing applications in diesel engines make use of bronze materials?

- A. Bushings ✓
- B. Camshaft bearings
- C. Connecting rod bearings
- D. Main bearings

**Q67 Part B (Mechanic Diesel)**

In Third Angle Projection, onto which plane is the elevation of an object projected?

- A. Vertical plane ✓
- B. Auxiliary plane
- C. Horizontal plane
- D. Inclined plane

**Q68 Part B (Mechanic Diesel)**

Which component works directly with engine valves to manage air and exhaust flow in a diesel engine?

- A. The crankshaft
- B. The camshaft ✓
- C. The fuel injector
- D. The flywheel

**Q69 Part B (Mechanic Diesel)**

Which mechanism acts as a lever to open the engine valve when pushed by the push rod in a diesel engine?

- A. Rocker arm mechanism ✓
- B. Tappet mechanism
- C. Camshaft mechanism
- D. Push rod mechanism

**Q70 Part B (Mechanic Diesel)**

An engine test reveals that the feed pump supplies inconsistent amounts of fuel to the filters under varying engine speeds. What is the most likely explanation for this behavior, considering the feed pump's design and function?

- A. Air entering the fuel tank causes irregular fuel supply patterns.
- B. The camshaft-driven feed pump varies delivery with engine speed changes. ✓
- C. A clogged fuel filter causes fluctuating pressure in the system.
- D. The injector opening pressure changes with engine temperature.

**Q71 Part B (Mechanic Diesel)**

Which component typically initiates the oil splash in a splash lubrication system?

- A. The vibrating crankcase
- B. The intake valve
- C. The rotating crankshaft ✓
- D. The vibrating cylinder head



**Q72 Part B (Mechanic Diesel)**

In a real-life scenario, how should a mechanic systematically diagnose and remedy persistent high engine oil pressure involving multiple possible causes?

- A. Adjust fuel mixture, check battery terminals, and clean spark plugs
- B. Replace coolant, inspect radiator, and adjust idle speed
- C. Clean exhaust manifold, replace air filter, and tighten cylinder head bolts
- D. Check oil viscosity, inspect relief valve, clean oil filter, and verify oil pump operation ✓

**Q73 Part B (Mechanic Diesel)**

Which electrical component fault can completely interrupt power supply to the ignition and starter circuits, causing engine not starting?

- A. Main fuse blown off ✓
- B. Air lock in fuel system
- C. Defective starting relay
- D. Defective brushes in starter

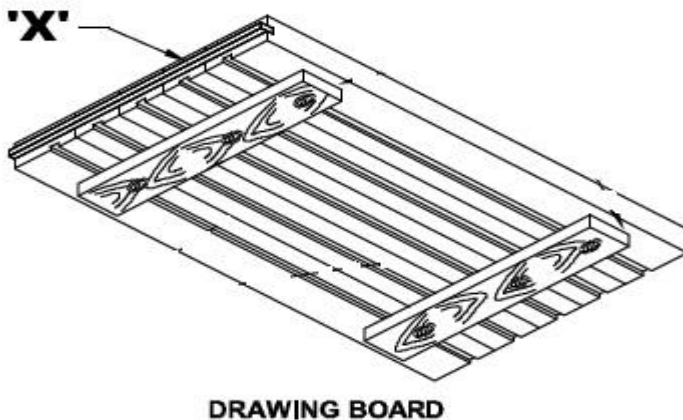
**Q74 Part B (Mechanic Diesel)**

What is the main function of a direction control valve in a hydraulic system?

- A. To control the path of fluid flow ✓
- B. To adjust fluid temperature
- C. To regulate system pressure
- D. To filter contaminants from fluid

**Q75 Part B (Mechanic Diesel)**

What is the name of the part of the shorter edges of the drawing board shown in the figure that is marked with 'X'?



- A. Drawing pin
- B. Battens
- C. Ebony edge ✓
- D. Wooden Strips



## Part B (Mechanic Diesel)

75 Questions • Answer Key

## Q1 Part B (Mechanic Diesel)

Which repair action is directly associated with restoring smooth current transfer in a damaged commutator in the starter motor?

- A. Tightening
- B. Rewinding
- C. Lubricating
- D. Regrounding ✓

## Q2 Part B (Mechanic Diesel)

When performing external checking of a forged component with outside callipers, which practice ensures reliable results?

- A. Recalibrating the tool after every measurement
- B. Reading values directly from the calliper scale
- C. Zeroing calliper to a known standard before use ✓
- D. Applying excessive force to ensure contact

## Q3 Part B (Mechanic Diesel)

Which combination of components allows a vernier calliper to measure both internal and external dimensions accurately?

- A. Fixed jaw, movable jaw & vernier scale ✓
- B. Locking screw and main scale
- C. Depth measuring blade and main scale
- D. Fixed jaw and locking screw

## Q4 Part B (Mechanic Diesel)

Which feature distinguishes a taper reamer from a straight reamer?

- A. A taper reamer's edges match the required taper ✓
- B. The number of flutes is always greater on taper reamers
- C. The handles are always longer on taper reamers
- D. Taper reamers have serrated teeth for faster cutting

## Q5 Part B (Mechanic Diesel)

A technician must prevent vibration-induced loosening in a bolted assembly on a high-speed machine. Which type of washer is suitable for this situation?

- A. Taper washer
- B. Flat washer
- C. Spring lock washer ✓
- D. Plain washer

## Q6 Part B (Mechanic Diesel)

A diesel mechanic is asked why carburetors are essential for petrol engines but not used in standard diesel engines. Based on the working principle, what is the best explanation?

- A. Carburetors adjust exhaust emissions for diesel engines only
- B. Carburetors create air-fuel mixtures required in petrol engines ✓
- C. Carburetors control engine cooling in both engine types
- D. Carburetors increase fuel atomization in diesel engines

## Q7 Part B (Mechanic Diesel)

Increasing current through a conductor increases the heat produced because heat is proportional to:

- A. Current
- B. Resistance only
- C. Voltage only
- D. Square of current ✓

## Q8 Part B (Mechanic Diesel)

Which factor most influences the completeness of combustion in a diesel engine?

- A. The engine's battery condition
- B. The mixing of air and fuel ✓
- C. The frequency of high voltage
- D. The octane number of fuel



**Q9 Part B (Mechanic Diesel)**

Which condition can lead to low engine oil pressure in a diesel engine?

- A. Oil pressure gauge showing excessive pressure
- B. Oil pressure relief valve stuck closed
- C. Insufficient oil level in the sump ✓
- D. Oil of higher-than-recommended viscosity

**Q10 Part B (Mechanic Diesel)**

In a hydraulic system, why is a non-return valve used when connecting a pump to a cylinder?

- A. To increase the pressure in the cylinder only
- B. To permit fluid flow in both directions
- C. To ensure one-way fluid flow & no backflow ✓
- D. To reduce leakage between connections

**Q11 Part B (Mechanic Diesel)**

When using outside calipers to compare two shafts, what is the best approach?

- A. Estimate by eye after using calipers
- B. Use inside calipers for both shafts
- C. Measure both shafts together at once
- D. Set calipers to one shaft and check the other ✓

**Q12 Part B (Mechanic Diesel)**

The extension lines are used together with \_\_\_\_\_ in engineering drawing dimensioning.

- A. Cutting plane lines
- B. Border lines
- C. Dimension lines ✓
- D. Hidden lines

**Q13 Part B (Mechanic Diesel)**

In planning a new industrial site, engineers must select vehicles for internal goods movement. If safety and maneuverability are both priorities, which vehicle classification by wheels is most suitable?

- A. Two-wheel hand trolley
- B. Six-wheel articulated truck
- C. Four-wheel electric cart ✓
- D. Three-wheel scooter with mixed tires

**Q14 Part B (Mechanic Diesel)**

How does the flywheel contribute to the operation of other engine accessories?

- A. By regulating valve operation
- B. By filtering fuel
- C. By providing a mounting surface ✓
- D. By cooling lubricant

**Q15 Part B (Mechanic Diesel)**

In an industrial engine, the cooling water temperature unexpectedly rises above normal, but oil pressure and oil flow remain consistent. How does this condition affect the oil cooler's ability to regulate engine oil temperature?

- A. The oil cooler cools oil faster due to greater heat exchange rate
- B. The oil cooler becomes less effective, resulting in higher oil temperature ✓
- C. The oil cooler compensates automatically, keeping oil temperature stable
- D. The oil cooler maintains oil temperature by increasing water pressure

**Q16 Part B (Mechanic Diesel)**

What is the main purpose of a diesel engine cylinder head?

- A. To seal the combustion chamber ✓
- B. To drive the crankshaft
- C. To lubricate pistons
- D. To supply fuel

**Q17 Part B (Mechanic Diesel)**

Which vehicle body classification has a fixed roof, moderate passenger capacity, and a separate luggage compartment, commonly used as a family car?

- A. Sedan ✓
- B. Van
- C. Convertible
- D. Hatchback

**Q18 Part B (Mechanic Diesel)**

How does the crankshaft help maintain engine balance during operation?

- A. By reducing exhaust gases
- B. By controlling valve timing
- C. By increasing fuel injection
- D. By using counterweights ✓



**Q19 Part B (Mechanic Diesel)**

Which part of the crankshaft connects to the connecting rod in a diesel engine?

- A. Flange
- B. Flywheel
- C. Crankpin
- D. Main journal

**Q20 Part B (Mechanic Diesel)**

What is a key diagnostic sign of low oil pressure in a Hydraulic Electronic Unit Injector (HEUI) system?

- A. Engine misfires or rough running
- B. Timing chain rattle noise
- C. High exhaust temperature
- D. Rapid fuel consumption rate

**Q21 Part B (Mechanic Diesel)**

When designing an automated cutting machine that requires precise blade positioning from both sides, why is a double-ended cylinder preferred over a single-ended one?

- A. It allows use of different cylinder sizes for each side
- B. It requires more manual adjustment for alignment
- C. It balances force and movement bilaterally for accuracy
- D. It makes synchronization with separate cylinders easier

**Q22 Part B (Mechanic Diesel)**

The total surface area of a cylinder is given by \_\_\_\_\_.

- A.  $2\pi r(h + r)$
- B.  $2\pi rh$
- C.  $4\pi r^2$
- D.  $\pi r^2 h$

**Q23 Part B (Mechanic Diesel)**

An engine exhibits erratic idling and excessive smoke after the induction manifold was reinstalled. What should be evaluated first regarding the diesel induction system's function?

- A. Clean the air cleaner to restore unrestricted intake flow
- B. Adjust the timing to optimize combustion efficiency
- C. Inspect the intake valve for proper seating and movement
- D. Check for manifold air leaks affecting air supply consistency

**Q24 Part B (Mechanic Diesel)**

In Marine Engines, which sequence best describes the coolant flow in a heat exchange cooling system after leaving the expansion tank?

- A. Direct to engine, then to oil cooler, then to cores
- B. To exhaust manifold, then to oil cooler, then to cores
- C. Around cores, to oil cooler, to engine coolant pump inlet
- D. To keeling coil, then to engine, then to expansion tank

**Q25 Part B (Mechanic Diesel)**

While welding, an operator observes sparks flying towards a nearby electrical extension board. What should be done to minimize electrical hazards during this activity?

- A. Place a damp cloth over the electrical extension board
- B. Shield the extension board using a metal cover
- C. Leave the electrical board in its current position
- D. Relocate the extension board outside the hazard zone

**Q26 Part B (Mechanic Diesel)**

What is the main function of the evaporative emission control system?

- A. It increases the engine operating temperature
- B. It increases the overall fuel consumption of the vehicle
- C. It prevents fuel vapours entering the atmosphere
- D. It improves the performance and grip of tyres

**Q27 Part B (Mechanic Diesel)**

A mechanic turns the ignition key in a vehicle fitted with an electrical fuel pump. What happens to the pump at that moment?

- A. The pump starts after engine warms up fully
- B. The pump starts after fuel pressure drops
- C. The pump starts when the vehicle begins moving
- D. The pump starts operating immediately upon ignition

**Q28 Part B (Mechanic Diesel)**

Which part of a Vernier caliper is used to measure the depth of a hole?

- A. The main scale
- B. The locking screw
- C. The depth measuring blade
- D. The fixed jaw



**Q29 Part B (Mechanic Diesel)**

Which scenario best demonstrates the correct use of a wire brush in an ITI workshop?

- A. Painting a metal pipe for finishing
- B. Measuring the pipe length accurately
- C. Cutting a metal pipe for measurement tasks
- D. Cleaning a metal pipe before using a scribe**

**Q30 Part B (Mechanic Diesel)**

In a scenario where flatness and minimal material removal are both critical, which lapping abrasive trait should be prioritized when selecting a compound?

- A. Chemical inertness
- B. Controlled abrasive friability**
- C. High initial hardness
- D. High thermal conductivity

**Q31 Part B (Mechanic Diesel)**

Which combination of actions helps prevent engine overheating due to coolant flow issues?

- A. Replace exhaust manifold gasket and inspect timing
- B. Flush cooling system and replace thermostat**
- C. Change fuel type for better combustion
- D. Adjust injector pressure and clean air intake

**Q32 Part B (Mechanic Diesel)**

Which of the following best describes the use of a non-continuous/dashed lines in engineering drawing?

- A. To show dimension and extension lines
- B. To represent visible outlines and edges
- C. To indicate hidden outlines and edges**
- D. To indicate cutting planes

**Q33 Part B (Mechanic Diesel)**

Which of the following aspects is most important for controlling vehicle emissions in modern diesel vehicles?

- A. Using proper emission control systems reduces harmful exhaust gases**
- B. Increasing engine size helps reduce emission levels in diesel vehicles
- C. Using high-content carbon fossil fuels results in lower vehicle emissions
- D. Ignoring engine maintenance and overhauling leads to reduced emissions

**Q34 Part B (Mechanic Diesel)**

During routine workshop maintenance, 80 liters of used engine oil are collected. If each disposal drum has a marked capacity of 25 liters and regulations require drums to be filled to only 80 percent for safe transport, how many drums are required?

- A. 4 drums**
- B. 6 drums
- C. 3 drums
- D. 5 drums

**Q35 Part B (Mechanic Diesel)**

Which type of wire is used for the pull-in winding in a solenoid switch?

- A. Thin Copper wire
- B. Thick Aluminium wire
- C. Thick Copper wire**
- D. Silver wire

**Q36 Part B (Mechanic Diesel)**

In engineering drawing, what angle do two radii form within a quadrant?

- A. 45°
- B. 180°
- C. 360°
- D. 90°**

**Q37 Part B (Mechanic Diesel)**

Which maintenance task is critical for a Hydraulic Electronic Unit Injector (HEUI) system reliability?

- A. Regular injector nozzle cleaning
- B. Routine air filter replacement
- C. Regular engine oil changes**
- D. Frequent fuel filter cleaning

**Q38 Part B (Mechanic Diesel)**

Which engine is generally more compact for the same power output?

- A. External combustion engine
- B. Internal combustion engine**
- C. Steam engine
- D. Stirling engine



**Q39 Part B (Mechanic Diesel)**

In which situation is a paper gasket used as a sealing element in automotive applications?

- A. Sealing flat, smooth surfaces with low pressure** ✓
- B. Sealing high-temperature exhaust manifolds
- C. Sealing uneven, rough surfaces in high vibration areas
- D. Sealing joints exposed to heavy oils and chemicals

**Q40 Part B (Mechanic Diesel)**

Which of the following represents the total surface area of a sphere?

- A.  $2\pi r^2$
- B.  $4\pi r^2$**  ✓
- C.  $\pi r^2$
- D.  $3\pi r^2$

**Q41 Part B (Mechanic Diesel)**

A mechanic inspects a modern diesel vehicle and notices the seat belt warning light remains active even when the passenger seat is empty. Based on the dashboard instrument design, which action should the mechanic prioritize to ensure system reliability?

- A. Check for blown seat belt indicator bulbs only
- B. Inspect the seat weight sensor wiring for faults** ✓
- C. Update the vehicle's onboard software system
- D. Replace the dashboard instrument cluster immediately

**Q42 Part B (Mechanic Diesel)**

Which part of the micrometer should be cleaned to remove debris after use?

- A. Ratchet stop
- B. Thimble
- C. Measuring faces** ✓
- D. Lock nut

**Q43 Part B (Mechanic Diesel)**

Why are fillets provided at the junctions of crank pins and webs?

- A. Decrease exhaust noise
- B. Enhance combustion efficiency
- C. Reduce stress concentration** ✓
- D. Improve fuel atomization

**Q44 Part B (Mechanic Diesel)**

In an electrical machine, interaction between stator and rotor magnetic fields produces:

- A. Mechanical torque** ✓
- B. Thermal insulation
- C. Electrochemical action
- D. Optical energy

**Q45 Part B (Mechanic Diesel)**

An engine with a two-part mechanical fuel pump design is experiencing intermittent fuel supply issues. During inspection, the technician finds that all external connections are secure and the mounting bolts are tight. What should the technician examine next to identify the source of the problem?

- A. The technician should check the fuel quality in the tank.
- B. The technician should inspect the pump exterior for leaks.
- C. The technician should inspect the internal rocker cam connection.** ✓
- D. The technician should examine electrical connections to the pump.

**Q46 Part B (Mechanic Diesel)**

Why does using oil with incorrect viscosity contribute to low engine oil pressure in a diesel engine?

- A. Overfilled oil sump increases oil pressure
- B. Underfilled oil sump increases oil pressure
- C. High viscosity oil restricts oil flow and increases pressure
- D. Low viscosity oil flows too easily and reduces pressure** ✓

**Q47 Part B (Mechanic Diesel)**

Which environmental problem is most closely linked to increased carbon dioxide emissions?

- A. Thinning of ozone layer in upper sky
- B. Soil erosion in agricultural fields
- C. Rising global temperatures over long periods** ✓
- D. Formation of acid rain on buildings



**Q48 Part B (Mechanic Diesel)**

In a scenario where multiple remedies are possible, how should a mechanic address persistent engine noise after all standard procedures have failed?

- A. Lubricating piston rings using correct oil
- B. Replacing air filter with high-quality type
- C. Conducting a comprehensive engine teardown and inspection ✓
- D. Adjusting valve clearance to manufacturer recommendations

**Q49 Part B (Mechanic Diesel)**

While manufacturing a cutting tool, which mechanical property is most important for the material to resist wear and scratching during operation?

- A. Ductility
- B. Hardness ✓
- C. Elasticity
- D. Toughness

**Q50 Part B (Mechanic Diesel)**

What issue can occur in the charging system due to a worn out or sticking brush in the alternator?

- A. No charging condition ✓
- B. Alternator noise
- C. Over charging condition
- D. Low output

**Q51 Part B (Mechanic Diesel)**

What type of gears is most commonly used in a ship's reduction gearbox?

- A. Double helical gears ✓
- B. Spur gears
- C. Worm gears
- D. Bevel gears

**Q52 Part B (Mechanic Diesel)**

A mechanic observes that the gear shift indicator suggests an upshift during steady driving at moderate speed. Why is following the gear shift indicator's recommendation beneficial in this scenario?

- A. Following the gear shift indicator's recommendation enhances rapid acceleration and shortens journey times.
- B. Following the gear shift indicator's recommendation reduces unnecessary engine load and improves fuel efficiency. ✓
- C. Following the gear shift indicator's recommendation increases transmission temperature and reduces driver comfort.
- D. Following the gear shift indicator's recommendation maintains high engine speed and increases exhaust emissions.

**Q53 Part B (Mechanic Diesel)**

Apart from drawing circles, a large compass is also used for:

- A. Measuring temperature
- B. Cutting sheets
- C. Printing drawings
- D. Taking large measurements ✓

**Q54 Part B (Mechanic Diesel)**

If a supercharger is driven directly by the engine through gears and shafts, what will happen for engine operation at higher speeds?

- A. It decreases compressed intake-charge delivery.
- B. It stops compressed intake-charge delivery.
- C. It keeps intake-charge delivery unchanged.
- D. It increases compressed intake-charge delivery. ✓

**Q55 Part B (Mechanic Diesel)**

Which engine type is more suitable for vehicles requiring frequent speed changes and quick acceleration?

- A. Stirling engine
- B. Steam engine
- C. Internal combustion engine ✓
- D. External combustion engine



**Q56 Part B (Mechanic Diesel)**

Which process best describes the use of a cylindrical lap in achieving a high-quality surface finish on hardened steel shafts?

- A. Rubbing the lap manually without compound
- B. Applying compound but not rotating the lap
- C. Using the lap without abrasive compound applied
- D. Rotating the lap with abrasive compound applied evenly ✓

**Q57 Part B (Mechanic Diesel)**

Why are Bharat Stage standards updated periodically for diesel engine vehicles in India?

- A. They are updated to reduce pollution and match global emission requirements ✓
- B. They are updated to improve fuel efficiency and decrease maintenance costs
- C. They are updated to increase vehicle sales and purchasing capacity in India
- D. They are updated to maintain older diesel engine designs and keep them functional

**Q58 Part B (Mechanic Diesel)**

Which feature makes a scribe suitable for marking on metal surfaces?

- A. Flexible rubber grip
- B. Hard pointed tip ✓
- C. Graduated measuring scale
- D. Wide flat blade

**Q59 Part B (Mechanic Diesel)**

Which piston pin locking system is NOT commonly preferred in high-speed engines because of vibration loosening?

- A. Wire lock locking
- B. End pad locking
- C. Circlip locking
- D. Set screw locking ✓

**Q60 Part B (Mechanic Diesel)**

A thermocouple generates thermoelectric voltage when its two junctions are at:

- A. Different temperatures ✓
- B. Equal temperatures
- C. Zero pressure
- D. Equal resistance

**Q61 Part B (Mechanic Diesel)**

Which of the following is a common application of pneumatic systems in automobiles?

- A. Running the fuel pump in cars
- B. Operating heavy vehicle brakes ✓
- C. Powering headlights in cars
- D. Starting the engine in cars

**Q62 Part B (Mechanic Diesel)**

A mechanic observes that the engine temperature indicator on the instrument panel has moved into the red zone during operation. What does this instrument primarily indicate in the context of the cooling system?

- A. It indicates the temperature of water in engine water jackets. ✓
- B. It shows the fuel level in the fuel tank only.
- C. It displays the engine RPM on the instrument panel.
- D. It measures the oil pressure in the engine block.

**Q63 Part B (Mechanic Diesel)**

A senior technician explains that the recovery system's design allows expelled coolant to return to the radiator instead of being lost. How does this benefit overall cooling system performance?

- A. It maintains system volume and reduces risk of overheating or air entry ✓
- B. It lowers engine noise and reduces mechanical vibration
- C. It enhances coolant flow rate and improves engine performance
- D. It improves fuel efficiency and reduces exhaust emissions

**Q64 Part B (Mechanic Diesel)**

During troubleshooting, a mechanic finds premature bearing wear in a diesel engine with infrequent oil filter changes. What does this suggest about the filter's function?

- A. It is used for reducing operational noise in oil
- B. It is critical for removing abrasive particles from oil ✓
- C. It is important for raising the total oil volume always
- D. It is necessary for changing oil flow direction only



**Q65 Part B (Mechanic Diesel)**

What property should a diesel engine bearing material have to withstand high loads?

- ☒ A. High fatigue strength
- ☐ B. Low melting point
- ☐ C. High porosity
- ☐ D. Low thermal conductivity

**Q66 Part B (Mechanic Diesel)**

If an engine is operated in a tilted position for extended periods, which lubrication system is most likely to ensure reliable oil supply to all parts?

- ☐ A. Oil mist lubrication system
- ☐ B. Wet sump lubrication system
- ☒ C. Dry sump lubrication system
- ☐ D. Splash lubrication system

**Q67 Part B (Mechanic Diesel)**

Which of the following is an important step to ensure personal safety in an auto workshop?

- ☒ A. Wearing protective gloves and goggles
- ☐ B. Working with wet hands near electrical equipments
- ☐ C. Keeping tools scattered on the floor of the workshop
- ☐ D. Ignoring warning signs in the workshop

**Q68 Part B (Mechanic Diesel)**

Valve seat inserts are commonly made from which type of material?

- ☒ A. High-strength alloy steel
- ☐ B. Aluminum alloy base
- ☐ C. Lead-tin alloy
- ☐ D. Copper and tin mixture

**Q69 Part B (Mechanic Diesel)**

In a series circuit, all components are connected in:

- ☐ A. Separate branches
- ☐ B. Parallel paths only
- ☐ C. Independent voltage loops
- ☒ D. A single current path

**Q70 Part B (Mechanic Diesel)**

If the oil return passages are blocked and the piston rings are worn, what is the likely outcome in a diesel engine?

- ☐ A. Reduced fuel pressure
- ☐ B. Overheated starter motor
- ☐ C. Poor battery charging
- ☒ D. Excessive oil consumption

**Q71 Part B (Mechanic Diesel)**

Which part interacts directly with the camshaft lobe to open an engine valve?

- ☐ A. The crankshaft main journal
- ☒ B. The valve lifter or follower
- ☐ C. The piston ring assembly
- ☐ D. The flywheel ring gear

**Q72 Part B (Mechanic Diesel)**

While servicing a diesel engine, a technician notes that the extractor manifold helps maintain a specific gas velocity. What design feature of the extractor primarily supports this function?

- ☐ A. Modifying the timing of ignition sparks
- ☐ B. Adjusting the size of engine pistons used
- ☐ C. Changing the type of fuel supplied to engine
- ☒ D. Choosing the correct tube diameter for flow

**Q73 Part B (Mechanic Diesel)**

A maintenance supervisor is designing a test to evaluate the effect of radiator cap pressure on engine cooling systems. He uses three identical engines but fits each with radiator caps rated at 0.7 bar, 1.0 bar, and 1.3 bar, respectively. Which system will allow the coolant to reach the highest temperature before boiling?

- ☒ A. System with the 1.3 bar radiator cap installed
- ☐ B. System with the 0.7 bar radiator cap installed
- ☐ C. System with the 1.0 bar radiator cap installed
- ☐ D. All systems will boil at the same temperature

**Q74 Part B (Mechanic Diesel)**

What is the main advantage of using superchargers in marine engines?

- ☐ A. Reduces air compression
- ☐ B. Increases engine size
- ☐ C. Decreases engine efficiency
- ☒ D. Increases thermal efficiency



**Q75** Part B (Mechanic Diesel)

What would happen if the intake valve in a diesel engine is too small?

A. Less air would enter the cylinder



B. The engine would cool faster

C. More fuel would flow into the engine

D. Exhaust gases would increase

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